The Hard Orchid Society Newsletter

No. 7 January 1998

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COMMITTEE NOTES

Richard Manuel/Carol Dash

A HAPPY NEW YEAR TO ALL MEMBERS!

We had a turnout of about 65 at the November meeting - not bad but we could do better! The photographic competition was deemed a great success - many thanks to Tony Hughes for organising it. Thanks also to our speakers for a stimulating and inspiring series of talks which were greatly enjoyed by all. Any volunteers for talks at the May meeting will be greatly appreciated.

At the brief EGM, held at the beginning of the meeting, the proposal that the Show rules would no longer constitute part of the Society rules was passed after some discussion. There were 2 votes against the proposal.

During the summer the Society notched up its 200th member (although not all are currently paid up!), and every week we still get fresh enquiries. It seems likely, especially considering all our recent advertising that by the AGM we could be over 250 and perhaps close to 300. This of course is good news, but it does bring problems too. The main one is that we are now no longer a small society, but are actually becoming quite large. As with all national societies, our lifeblood is the newsletter. It is our only method of communication throughout our whole membership.

Not surprisingly, the effort of producing a document of 12 double sided photocopies for each member is too much for our brave editorial team of Carol and Alan Dash, so we are now having the newsletter printed professionally. This edition has been printed in the same style as previously, but the future editions will be as a card covered A5 booklet. We hope that this will meet with the approval of the members. The content will continue in the same style. The expense of this can be borne by the society, at least until the AGM, when it is likely that a modest increase in subscriptions, purely to cover the costs of the newsletter, will be proposed for the following year. The exact amount has yet to be calculated. To spread the work load further - the distribution side of the newsletter is also being spread to other committee members (probably Bill Temple). So please bear with us if there are a few initial hiccups in implementing all the changes.

Looking not that much further ahead, Carol's term of office will expire at the 1999 AGM, so if there are any members out there with literary aspirations, editing us into the next millenium could be the career move you have been waiting for! This is a serious plea, as without an editor to follow Carol the society will be hard put so survive. Anyone interested please contact Carol....

NOTICES AND DATES FOR YOUR DIARY

Richard Manuel

We have joined the British Orchid Council and this will help spread our name through the orchid world via their "Yellow" year book. Richard Nicol has agreed to be our representative, but we are allowed two in case anyone is interested!

The Society hopes to stage a small exhibit at the RHS Orchid Show on March 7-8th next year* If anyone is likely to have plants in flower around that time that they would be willing to have exhibited, and can get them to me (Richard Manuel in Oxford) or Barry Tattersall in Twickenham the week before, we would be delighted to use them. It is a little early in the year for most of our orchids, so any plants will be welcome. We also need volunteers to man the exhibit for an hour or two, especially during Saturday and on Sunday morning. We might be able to get free entrance for helpers who contact me in advance.

Kew are holding a Native Orchid Seminar on February 17th 199_8_ from 1 - 4 pm in the Jodrell Lecture Theatre. HOS members can attend for a concessionary price of £5 which includes admission to the gardens and afternoon tea/coffee. Further information should appear with this newsletter in the form of a booklet -if not other details and information on booking can be obtained from Sarah Oldridge on 0181 332 5626.

The next HOS meeting, including the AGM, is on May 2nd 1998 at Pershore.

CONSERVATION NEWS

Bill Temple and Alan Dash

On two weekends in September, members of the Society braved the Oxfordshire elements to rescue a colony of White Helleborines (Cephalanthera damasonium). The colony was threatened with destruction due to planned development. Prior written agreement of the landowner was obtained to remove them, and arrangements were made with BBONT (Berkshire, Buckinghamshire and Oxfordshire Nature Trust) for them to be planted in two of their nature reserves which already had colonies of White Helleborines. A few plants were also transferred to two local woods, which did not already have colonies but which seemed suitable (after obtaining the permission of the landowners). Some plants were collected by RBG Kew.

Following the success of this operation the same landowner has asked HOS to grow some orchids to be planted in other parts of their land which are not threatened. BBONT has given permission for a few seed pods to be harvested for this project next year. It is hoped that Common Spotted, Southern Marsh, Bee and Pyramidal orchids will be available to plant out at the change of Millenium. Volunteers to sow seed and raise seedlings for this or other conservation projects please contact us.

Thanks to all those who worked so hard on this project.

REVIEW OF THE NOVEMBER MEETING **29/11.97**

RESULTS OF THE FIRST HOS PHOTOGRAPHIC COMPETITION

Tony Hughes

First of all, a big 'thankyou' to the dozen or so members who made our first attempt at a photographic show such an outstanding success. To see the benches covered with so many fine pictures was a real delight, much appreciated by everyone present. Thankyou too to Paul Harcourt Davies for being our judge; not an enviable task with so many good pictures - and he had to face his friends afterwards!

As was said in the last Newsletter - "There are no prizes -but winners will receive honourable mention...." So here are the honourable mentions!

Class 1, An orchidaceous landscape, print size 6x4 inches (16 entries) :
1st Carol Dash Gymnadenia conopsea, Murren, Switzerland 2nd Tony Hughes Orchis italica, South of Spili, Crete 3rd Peter Corkhill Dactylorhiza hybrid

Class 2, A single orchid plant, print size 6x4 inches (16 entries):
1st Nick Storer Spiranthes spiralis, Ireland 2nd Carol Dash Orchis pauciflora, Spili, Crete 3rd Tony Hughes Ophrys lapethica, Cyprus

Class 3, A single flower or spike, print size 6x4 inches (23 entries) :
1st Richard Manuel Ophrys candica
2nd Simon Andrew Ophrys aeculapii
3rd Tony Hughes Ophrys mammosa

Class 4, An orchidaceous landscape, print size 10x8 inches (10 entries) :
1st Richard Laurence Ophrys apifera
2nd Tony Hughes Orchis mascula, near Malvern
3rd Simon Tarrant Gymnadenia conopsea, Dolomites, Italy

Class 5, A single orchid plant, print size 10x8 inches (7 entries):
1st Tony Hughes Ophrys sphegodes, Dancing Ledge, Dorset
2nd Peter Corkhill Cypripedium hybrid, cultivated
3rd Simon Tarrant Orchis italica

Class 6, A single flower or spike, print size 10x8 inches (18 entries) :
1st Bill Temple Nepttia nidus-avis
2nd Simon Andrew Ophrys garganica
3rd Richard Laurence Orchis morio

As can be seen, the honours were well spread around, with a different winner in each class - and not all went to committee members!

So, what about next year's show? We know we have to improve the labelling of entries, but have you any other suggestions? In the meantime, now that Paul has told us all his secrets, we can start planning next year's photography with our show in mind.

Ed. – Thank you again to Tony and Diana for organising and staging the show and for letting me have the results so promptly!

Summaries of the talks given, adapted by Carol Dash.

AN AUSTRALIAN JOURNEY IN SEARCH OF ORCHIDS

Richard Laurence gave us a wonderful insight into wild orchids in SW and S Australia, with beautiful slides to tempt us round to the other side of the world! The content of Richards talk will form the basis of an article in the newsletter in the near future.

ORCHIDS IN SARDINIA

Simon Andrew's talk was based on a visit to Sardinia made 31 March to 6 April 1990. He saw 33 species of orchid at 28 different 'sites'. In the pine forest areas within the dunes along the North coast were Gennaria diphylla, beginning to go over. This orchid is rare on Sardinia due to loss of habitat -much of this suitable area has been developed for tourism.

Lots of Serapias were found, including a very nice form of Serapias cordigera with a rich red lip. Large numbers of the small flowered 5. parviflora were present as well as large mats of S.lingua.

One particularly orchid rich area was at Nuoro, near the East coast. This is an area of scrubby land some 20 miles from the coast, with pine trees. Orchis brancifortii - a rare orchid, endemic to Eastern Sardinia and Northern Sicily - was found here. This is thought of as the local version of 0. quadripunctata but has a very short deeply trilobed lip.

Orchis papilionacea including the var. grandiflora form were common on the island in various strengths of colour and veining of the lip. This orchid was seen in more than 20 sites on the island. Often it was growing with Orchis longicornu (the S. Central Mediterranean version of O.morio)in various colour forms. Hybrids between the two Orchis were common, with lip patterns and hood shape intermediate between the two parents.

The centre of the island is quite mountainous. Another Orchis endemic to Sardinia can be found here. The O.mascula ssp ichnusae, which is the local version of the Early Purple Orchid, is a compact plant with pale flowers and a dotted pattern on the lip.

Other species found more widespread in Sardinia included Anacamptis pyramidalis, Orchis lactea, Orchis laxiflora, Aceras anthropophorum and Barlia robertiana. Ophrys lutea is reasonably plentiful on the island, with 2 forms both equally common i.e. the wide yellow lip and the form with a much narrower yellow margin. Other Ophrys included 0. speculum (ciliata), O.fusca - iricolor and 0.atrata.

Sardinian Ophrys specialities include the very variable 0. morisii and O.praecox. These are a local group of orchids, not apparently very clearly defined, with some 'early spider" and some 'late spider[1] characteristics. Simon showed us a huge variation in lip patterns. Ophrys chestermanii is another Sardinian speciality with 'late spider' characteristics - *a* broad dark lip and very small sepals and petals.

Ophrys tenthredinifera was very common all over the island and hybridised freely with many other Ophrys species to produce a confusing array of plants and lip forms. 0.bombiliflora hybrids were also found. The limestone gorge area near Laconi is the home of tenthredinifera x morissii hybrids known as O.laconensis. The general feeling was that the resulting hybrids were very muddled and very difficult to name with full certainty!

VIRUSES IN ORCHIDS - THE STORY SO FAR

Colin Clay from the Horticultural Research International, gave us a fascinating introduction to the world of viruses - as viewed through the eyes of an electron microscopist! His talk was well presented arid obviously had involved a lot of background literature searching to check recent developments specific to orchids. Much of the research has been carried out on tropical orchid species and the potential for cross over between tropical and hardy orchid species has not been established. However as Colin showed us viruses are not always species specific and as many of us grow a great range of plant species the possibilities for viruses to spread are numerous.

The following list shows a summary of which viruses have been found in orchid plants:

VIRUS NAME	HOST NAME
Bean yellow mosaic potyvirus	Cymbidium sp
Clover yellow vein potyvirus	"
Cucumber mosaic cucumovirus	"
Cymbidium mild mosaic isometricvirus	"
Cymbidium mosaic potexvirus	Cattleya sp, Cymbidium sp
"	Epidendrum sp, Laelia,
"	Phalenopsis sp, Vanda sp
"	Vanilla fragrans, Zygopetalum sp.
Cymbidium ringspot tombusvirus	Cymbidium sp.
"	Trifolium repens (White clover)
Cypripedium potyvirus	Cypripedium calceolus
Dendrobium mosaic potyvirus	Dendrobium sp.
Dendrobium (large) rhabdovirus	"
Dendrobium rhabdovirus	"
Dendrobium vein necrosis closterovirus	Dendrobium phalenopsis
Grammatophyllum rhabdovirus	Grammatophyllum scriptum
Laelia red leafspot rhabdovirus	Laelia sp.
Long orchid rhabdovirus	
Masdevillia isometric virus	Masdevillia sp.
Odontoglossum ringspot tobamovirus	Cymbidium sp.
"	Odontoglossum grande
(TMV - 0 strain)	Vanilla fragrans
Orchid fleck 'rhabdovirus'	Coelogyne sp. Cymbidium sp
"	Dendrobium sp. Miltonia sp
"	Odontoglossum sp. Paphiopedilum sp
"	Phalenopsis sp. Renanthera sp
"	Vanda sp.
Phalenopsis bacilliform virus	Phalenopsis sp.
Tobacco rattle tobravirus	Orchis purpurea
Tomato ringspot nepovirus	Cymbidium sp
Tomato spotted wilt tospovirus	"
Trichophilia isometric virus	Trichophilia sp.
Turnip mosaic potyvirus	Cymbidium sp
OM strain	Orchis militaris, Orchis simian
"	Aceras anthropophorum, Anacamptis
"	pyramidalis, Barlia longibracteata

	" "	Ophrys speculum & tenthredinifera
	" "	Orchis morio, papilionacea, italica
Vanilla mosaic potyvirus		Vanilla pompana, Vanilla tahitensis
Vanilla necrosis potyvirus = Watermelon 2		Vanilla fragrans

The Cymbidium mosaic potexvirus is very common in tropical orchids and is spread by touch - so instruments used to cut or trim plants could spread infection very easily. The Tobacco rattle tobravirus however is spread by nematodes i.e in the soil and can affect Orchis purpurea. The Turnip mosaic potyvirus is very common and a strain was found by German researchers in a cultivated collection of Hardy orchids (see list). Further testing of this virus to find its mode of spread has so far been unsuccessful - although aphids are thought to be the most likely possibility.

Symptoms of viral disease in a plant are very variable. Bumping of the veins, with yellowing and dying of leaves was seen in cultivated Cypripedium leaves - this was later identified as a potyvirus. Petal break and necrosis of flowers can also be seen in some orchid species.

Looking for virus in plant samples involves several testing methods. The electron microscope antiserum decoration test can be used as well as identifying typical virus shapes or inclusion bodies by transmission electron micrograph (TEM). Enzyme Linked Immuno Sorbent Assays (ELISA tests) can be used once a specific virus is suspected but results are not always reliable. Ultimately it may be necessary to test virus samples on indicator plants, Chenopodium amaranticolor is commonly used for some viruses and results are usually seen relatively quickly, within 20 days of innoculation.

Preventing spread of viruses between plants is a very important consideration for us as growers. Most viruses need some sort of vector for transmission between plants. Potyviruses are mostly spread by aphids (some also spread by whitfly, mites or fungi) so pest control is vital. Viruses spread by fungi (often in the zoospore) are harder to prevent. Some viruses e.g the Cymbidium ringspot tombusvirus do not need a vector for transmission however, they can be spread in water. (How frightening for those of us with sand plunges!) This virus also affects clover fields and so is not specific to orchid species. The potential for viruses to spread from our garden vegetables or herbaceous plants or even wayside weeds to our precious orchid collections is vast!!

Not enough work has been done to show the spread of viruses through seed. However green podding techniques do constitute a risk for viral spread. Also it was thought that despite seed treatments used to clean orchid seed prior to sowing the seedling could possibly pick up virus as it germinates through the seed coat. The effects of a virus may not be severe. Indeed research shows that certainly in tropical orchids a high percentage of nursery stock is infected with virus, yet is asymptomatic. It is not until the plant is stressed for other reasons that the virus will cause ill health. Sampling from

wild hardy orchids have so far suggested that they are virus free - possibly because they are growing happily where they are or simply have not been challenged by a virus yet.

Because of the need for a vector to spread most viruses concern was expressed about the possibility of introducing virus in growing/replating media through the use of potato pieces or of pineapple juice. It was agreed that this was a real risk but that autoclaving should destroy any viruses present.

Since large numbers of virus particles are needed to cause disease, water borne viruses would be unlikely to cause problems through spread via rainfall.

Once a plant is infected with virus it cannot be treated, so it is best to try to keep plants healthy and virus-free:

1) eradication of virus from nuclear stock
2) virus testing of nuclear stock *
3) control of virus vectors (aphids, nematodes, thrips, whiteflies etc)
4) general hygiene in the movement and handling of plant material
5) production of resistant varieties by breeding & transformation
6) development of mild strain cross-protection i.e. infecting a plant with a mild non disease forming virus can give protection against a more severe form of virus.

These last two objectives are part of the current aims and research being carried out at the Horticulture Research International and the above list is adapted from their information leaflet.

* the HRI currently offers a virus testing service for growers and horticulturalists at £20.00 + vat per sample. This is extremely good value and possibly will become much more expensive in the near future. The service involves tests (EM plus possibly ELISA as well) to look for virus - actual naming of the virus takes more work. For further information contact:

Horticulture Research International,
Wellesbournej
Warwick, CV35 9EF
Tel: 01789 470 382
Fax: 01789 470 552
E-mail: nicola.spence@hri.ac.uk.

ORCHID ODDITIES

After lunch Alan Blackburn showed us some photographs of unusual specimens of Hardy Orchids. These included Epipactis phyllanthes with its greeny flower which hardly opens and its swollen ovary. Unusual colour forms and lip shapes in Ophrys apifera including albino forms were shown. Similarly a 'white' form of Ophrys insectifera from Kent was shown. The now

destroyed, hybrid Bee x Fly orchid from the Avon Gorge was also interesting for those of us who had not seen it in the flesh, so to speak.

PHOTOGRAPHIC FORUM

Our chairman and photographic competition judge Paul Harcourt-Davies gave us another amusing and beautifully illustrated insight into the world of photography. Judging from the days speakers and also members entries in the competition there is already *a* very high standard of photographic ability within the society. However Paul's professional skills are always admirable! and this display rounded off the days talks perfectly. Paul gave us many tips and suggestions for landscape and close-up work.

The use of wide angle lenses for landscape work will benefit from the extra stability provided by a tripod, such as the Benbo, and a cable release. This enables one to use a slow shutter speed with a lowish speed film to maximise the depth of field and quality of the picture. If the foreground i.e the plant is sharply in focus then the background is best just out of focus to set off the foreground. This is perfectly illustrated when photographing alpines in their natural setting with a mountain or smow field in the background. Choice of format i.e. landscape or pictorial should also be considered and preferably take several shots - as few are repeatable!

A polarising filter can be useful particularly in the mountains to enhance the light on a plant and intensify the colour of the sky.

For close-up work the use of a flash system to give "biting sharpness" plus a good depth of field is very effective. It also avoids the problems of low light intensities making photography impossible. A black background is common as the light drops off behind the plant. Paul's systems are based on two flashes mounted on the end of the camera lens. The two light sources from different angles give relief on the flower surface which prevents them looking flat. The composition of the close-up shot is also important. Two flowers in the picture are often at slightly different angles to each other and so show off the 3-dimensional aspect better than a single flower would. Also 2 flowers would be taken slightly further away than one flower and so at a slightly lower magnification which means a slightly better depth of field. If photographing a single flower e.g. an Ophrys flower it is best to take the picture at 45' to the lip rather than face on again to maximise the 3-D aspect.

Close-up pictures of white or pale yellow flowers can be burnt out. To obtain more surface detail and relief on the flower it is best to open up by 1 stop in such cases.

ENGLISH NATURE SPECIES RECOVERY PROJECT - LADY'S SLIPPER ORCHID

Alan Dash, Conservation Officer

RBG Kew have been hard at work raising seedlings from known British plants of Cypripedium calceolus. Their success has resulted in numbers of seedlings beyond the capacity of English Nature and RBG Kew to grow on. This winter the H05 has been offered some of the excess of one year old seedlings for members to grow on. The number of seedlings look likely to be about a couple of hundred. I'm afraid this may not be sufficient to go round all of the members wanting to take part and it seems inevitable that there may be some disappointments.

Members requesting seedlings should complete the enclosed application form which will act as a declaration to abide by the conditions of English Nature. Note that information must be kept on the cultivation techniques, up to two thirds of the plants raised may be recalled by the project to be planted and that neither the seedlings nor plants raised may be used for any commercial gain. I can't yet be sure of the time or method of distribution. To cover costs of postage please could applicants send cheques for £1.50 payable to the Hardy Orchid Society. If it proves possible to distribute without posting then the cheques will be destroyed.

SEED SOWING AND REFLATING MEDIA FOR TERRESTRIAL ORCHIDS

Peter J. White

This short article was written following the recipe appearing in Newsletter 2, for asymbiotic germination. It does appear that the vitamins and NAA, that were in the original ingredients, are missing from the published recipe. No doubt this recipe works okay, but germination would be enhanced by the addition of the vitamins and ,certainly the NAA, as this is a known stimulant for germination. Kinetin has also been left out from what was the original recipe. However, here is the complete recipe for this media that I passed on to Bob Dadd many years ago, although it has now been modified a couple of times. I found it very good for certain species of Dactylorhiza, Orchis and Ophrys, but do not use it so much now as I prefer to use Malgrem's medium which I found superior for sowing Cypripediums, although far more complicated.

HOS-V medium + KIN + NAA: (for germination)

Calcium nitrate	0.25gm
Greenaway Orchid Food	2ml
Calcium nitrate	0.25gm
Pineapple juice	25ml
Sucrose	lOgms

Fructose 6gms
Agargel 4gms
Charcoal (optional) 1gm

Plus:-

Kinetin 2ml

a-Naphthaleneacetic acid (NAA) 1ml

Plus:-

Vitamins

Thiamin (Bl) 1ml

Nicotinic acid (Niacin) 1ml

Make up 1 litre with purified water to a pH of 5.3 HOS-V

medium: (For replate)

Greenaway Orchid Food 2.5ml
Calcium nitrate 0.25gm*
Pineapple juice 25ml
Sucrose 12gms
Fructose 8gms
Agargel 4gms
Charcoal (still optional) 1gm

Plus:-

Vitamins

Thiamin (Bl) 2ml
Nicotinic acid (Niacin) 2ml

Make up 1 litre with purified water to a pH of 5.3

* If scales are not available to measure small amounts, a stock solution of calcium nitrate can be made up and used in liquid form at lOml/litre.

The original design of this medium contained activated charcoal but I no longer use it, I have included it here as optional for those of us who still like it in their media. Charcoal is very good for absorbing most of the nasties from the medium and this can also cause problems, in that it will also absorb certain vitamins and so make them unavailable to the seedlings. Vegetable charcoal is a much better proposition as it does not have the same effect - if it can be obtained. My original supplier for vegetable charcoal no longer imports it from the States, perhaps one of our members may know of another supplier?

Some folk mix the NAA with the Vitamins as a stock solution but this is NOT advisable. NAA will stimulate germination but will also retard growth of seedlings, as will Kinetin, so both chemicals are left out of the replate medium. Thiamin and Niacin, on the other hand, will enhance the growth of seedlings, and so can be used for both media, with extra in the replate medium for good measure.

The following notes on stock solutions may also be of interest:

	Stock solution	Use at
Thiamin	lOmg/lOOml water	1ml/litre
Niacin	lOmg/lOOml water	1ml/litre
Calcium nitrate	25mg/litre water	lOml/litre

The vitamins can be combined in one solution and then stored in the fridge, i.e. 10ml of each in 100ml of purified water and use at 1ml of stock per litre of medium. Heat sterilising does not seem to be a problem with the vitamins used here, however, if we are worried about this then extra can be used with no apparent ill effects as it is only the minimum that is being used. Freezing is not necessary although for long term storage it may be advised - small quantities of 1, 2 or 3ml can be stored in syringes in the freezer ready for use, thus avoiding having to thaw out the stock bottle each time.

Kinetin and NAA can now be purchased from Sigma in liquid form, this saves all the bother of mixing the powdered forms. The small 25ml bottles, or larger if required, can be kept in the fridge, no need to freeze.

Pineapple juice can be measured into 25ml lots and placed into small Polythene bottles and then frozen until required, or one can just drink the remainder and buy a new can the next time one needs to make up some media.

Greenaway Orchid Food is best kept in the fridge between uses otherwise it will grow a fur coat. If the same fertiliser is also used in the greenhouse it would be a good idea to pour off a small amount while fresh into a container and keep solely for seed sowing.

Calcium nitrate in liquid form can also be kept in the fridge although it will not come to any harm at room temperature.

A word or two about mixing the ingredients will probably not go amiss here. The dry materials, calcium nitrate and the sugars, are put into a 2 litre Polythene measuring cylinder. I then mix the agar into this before adding the liquids. By mixing it with the sugars in this way I find that it doesn't 'lump' up. 800ml of purified water is then poured into the

cylinder while stirring, I find that the hand blenders used in the kitchen (£14 from Boots) are a useful tool for this purpose. Next, the liquids are then added, in any order, and everything is given a good stir. We must ensure that all the ingredients are added and that nothing is forgotten, the simplest way to ensure this is to place everything on the bench in front of you and as they are measured into the cylinder the stock containers are put away. The next time I miss something out will not be the first but luckily *I* usually remember before it is too late - or do I ?? - there has been the odd occasion when a batch of flasks have not produced the results expected, or hoped for - I wonder then if perhaps I have left something out after all.

The pH is adjusted to the required value before topping the cylinder up to 1 litre. A pH meter is a very useful tool for this and certainly more accurate than test strips, I could never get to grips with those things anyway.

A good final stir is given to ensure that everything is in suspension and the whole lot is then popped into a saucepan and warmed on the low heat until the agar has melted and blended with the other ingredients, there is no need to bring the liquid to the boil. Once cooled (although this is not necessary) the medium is divided out into flasks (22 x 1lb honey jars) and then placed into the pressure cooker for sterilising for 20 minutes, remembering of course to loosen the lids of the flasks by half a turn on putting them into the cooker. Flasks are removed from the cooker whilst still hot and placed on a level surface and covered with a clean tea-towel to set, after remembering to screw the lids back down again.

The lids I use are of clear Polythene and have to be bought separately from a different source than that of the jars. A small hole is burnt or drilled into the lid to take a small piece of cotton wool to allow an exchange of sterile air.

Incidentally, I have also tried various other fertilisers with varied success but Greenaway fertiliser is probably the best. I did find one that was potentially better and was of organic origin but it appears to have very quickly disappeared off the market. When I find the time I will play around with Fish Emulsion and see what I can make of that one, if anything.

FAVOURITE ORCHIDS - Orchis longicornu

Carol Dash

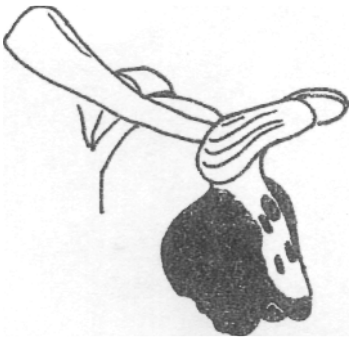
It is very difficult to choose ones favourite orchid as they are almost all beautiful in one way or another. I shall however never forget seeing the striking brightness of Orchis longicornu. When we first saw them they were colourful jewels on a grassy slope below the roadside in the mountains of

Mallorca. The bright specks drew the eyeand were enough to send us scrambling down to investigate with the familiar adrenalin rush of excitement known to many keen orchid spotters!

We were not disappointed. Although at first sight similar to our lovely native Orchis morio (Green winged Orchid),the plants were much more striking.

Standing individually in a patch of rough grass, they did not give the same sheet of colour as the hay meadows full of 0.morio in April/May in Hereford and Worcester. However, each plant seemed to stand out with a richness of its own. The lips seemed to be made of luxurious velvet and the colour variations were impressively regal.

0.longicornu is closely related to 0.morio and has a similar shaped flower. The plants are of similar height and robustness - although there are not always as many flowers on the inflorescence. The sepals and petals converge to form a hood or helmet above the lip. The hood has veining like 0.morio but it is not always green. The lateral lobes of the labellum in 0.longicornu are much darker than 0.morio and are a different colour from the hood. These lateral lobes are greatly recurved - more so than in 0.morio, which can be variable. The colour of the 3-lobed lip varies from a rich blackish-violet through pink to a strong red. The red is an unusual shade, a really striking unusual red. The median area of the lip is white with dark spots the same colour as the lateral lobes.



Orchis longicornu

Orchis morio

The distinguishing feature of 0.longicornu, as the name implies, is its long cone shaped spur. It is upturned or even vertical and swollen at the tip. This feature is similar to O.morio ssp champagneuxii, however the lip colouring is very different.

Mallorca is the only place I have seen Orchis longicornu. Having read the books.....been to the talk!.... Sardinia seems to be a stronghold for it in all its colour forms.... so maybe next year .....

CULTIVATION OF CYPRIPEDIUMS - part 2

Peter J White

Care of Asian Cypripediums

One of the biggest problems with most Asian Cypripediums, and I suspect a few American species, is that if they are not kept fairly dry during the winter dormancy period and with reduced moisture content in the media at other times of the year, they will surely rot. In nature these species seem to only encounter enough moisture throughout the year to sustain them and so because of this, have very little tolerance to over-damp conditions. The underground parts, buds etc are extremely sensitive to excess moisture throughout the year but during the winter period this can become a real problem and if not addressed can guarantee the loss of the plant.

At one time I found it very difficult to keep Cyp, cordigerum, Cyp, formosanum, japonicum, Cyp. macranthum and its allies and even Cyp. guttatum alive for more than one season. If they did grow for the second season the stem would rot at the junction with the rhizome. This would also happen even when in full growth and the stem would just keel over even though they looked fairly healthy. As I did not seem to have this same difficulty with other species I decided to investigate the reasons why and to try to overcome this problem.

My first attempts were partially successful. This was to place a tube over the dormant bud during repotting. When the pot was full the tube was then gently removed and the void was then filled with sand or fine gravel, thereby forming a column through which the stem could grow and not be subjected to excesses of moisture.

The gravel proved the most successful but as the plants would grow forward and out of the column very quickly, this meant repotting every year. This was not only labour intensive but also was not always conducive to good Cypripedium culture, as certain species - in particular some of those mentioned above -resent being moved or repotted too often. The answer was simple, just fill the whole pot above the rhizome with gravel or a similar free draining substance to ensure that this area stayed relatively moisture free. This has proved to be extremely successful and I have found that it can be used not only with Asian species and with all Cypripediums but with most

other types of hardy orchids, species and hybrids with some modifications to the top zone. The first time I ever experimented with the method was in fact with Orchis mascula several years earlier and proved extremely successful, not only with this but also with Dactylorhizas.

All my plants, as mentioned in the previous article are kept in pots whether in the greenhouse or planted in the garden, so the following method works very well in both cases. Because those that are kept in the garden are planted complete with pots it is very simple to change the cultivation techniques to suit individual species, as this will allow perfect control over the growing media which can be easily changed or adjusted. For instance, some species prefer more acidic conditions whereas others require extra lime. Some grow better with more humus, others with less or in a few cases none at all. Some will tolerate moister conditions around the bud and stem and so on.

The pots (clay pots are best for this purpose) are divided into two zones, moist and dry ones. The bottom (moist) zone, while remaining well aerated with good free drainage, can also contain suitable humus elements such as peat and/or beech or oak leafmould, pineduff/needles etc. The rhizome is placed onto the media and pressed gently into it, but not necessarily covered by it - although the roots can be. The roots can be carefully spread out and placed pointing slightly downwards. This is then covered by the top (dry zone) layer of inorganic and extremely well draining material. By using this method, very little, if any moisture will gather around the bud thereby avoiding rotting of the underground parts. At the same time there would be enough cover to the rhizome to ensure that it does not dry out or suffer due to insufficient moisture. The roots will also be happy to work their way down into the humus enriched bottom layer.

During the winter dormancy, plants that are normally kept in the greenhouse can be plunged into a peat bed or other spare part of the garden. To ensure protection from the winter rains they are then covered with a sheet of glass, Polythene or similar. I use thrown out secondary double glazing panels which I find ideal for this purpose. Sheets of Polycarbonate would also be ideal, although expensive this material is light and virtually unbreakable and comes single, double or even triple skinned.

As the plants are placed in the raised beds the material for the beds can be of virtually anything, provided that it is free draining - coir would be a good substitute for peat. This is even more important if the raised bed is lined and being used as a bog garden to allow moisture to percolate up through the media. A hole is dug in the bed to accommodate the pot then a good layer of grit is placed in the bottom of the hole to sit the pot on before backfilling around it, this will allow continual drainage and ensure that the bottom of the pot does not become sealed.

Although protected from the direct winter rains there would still be enough moisture in the surrounding ground to ensure

that the root system of the plants does not dry out completely. Cyp.montanum and Cyp, acaule are American species that do not like to be kept too wet and certainly appreciate drying out during the winter period. Although I have had no experience with Cyp, passerinum I am sure that this method would also benefit this species as I believe it is also susceptible to winter rot if kept too wet. An additional bonus with this method is that the roots are kept cold throughout their dormancy. This is particularly important with many Western species that require several months of winter temperatures down to 4'C or less.

Some species, Cyp, formosanum for instance, are obviously susceptible to the cold and will not stand long bouts of freezing conditions. These can still be kept in the garden but protected by a thick blanket of leafmould to guard against freezing. In the Spring the pots can be lifted out, cleaned off and returned to the greenhouse if so desired, or they can be left where they are. There is one distinct disadvantage with this method - it is very, very labour intensive and time consuming if you have a lot of plants but in the end it is certainly well worth the effort.

LETTERS TO THE EDITOR

From Mr Peter Revell in response to Peter White's article in Newsletter 6. Cultivation of Cypripediums, Part 1.:

I am sure everyone is as fascinated as I am by Peter White's account of his methods for successful cultivation of these lovely aristocrats outdoors in the balmy clime of Devon but two items in his account set alarm bells ringing.

On page 10 he states that he sterilises the Beech leafmould in his composts. Why? What awful miasma does he imagine exists in Beech leafmould? All the samples which I have examined in the wild have been wholesome enough to eat - the home of Amanitas, Boletes and other mycorrhiza, a beneficial constellation of subterranean stars despised and feared by Joe Public in Britain.

On page 12 he states that all rainwater is collected in one tank and is then distributed to the remaining storage tanks via a network of 1/2" and 3/4" copper pipe. Copper dissolves readily in rainwater and the resulting Copper carbonate, at very low concentrations, is still one of the most effective fungicides known, even in ancient concoctions, e.g. Bordeaux Mixture, Burgundy Mixture and Cheshunt Compound. Without doubt, Copper carbonate will have a malign influence on the mycorrhizal and benign fungi in the compost and Peter should replace the Copper pipe and fittings with plastics immediately.

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